



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/168,688	10/09/1998	YOSHITAKA SHIMURA	837.1186/JDH	2794

21171 7590 03/25/2003

STAAS & HALSEY LLP
700 11TH STREET, NW
SUITE 500
WASHINGTON, DC 20001

EXAMINER

SINGH, DALZID E

ART UNIT	PAPER NUMBER
----------	--------------

2633

DATE MAILED: 03/25/2003

14

Please find below and/or attached an Office communication concerning this application or proceeding.

12

Office Action Summary

Application No.

09/168,688

Applicant(s)

SHIMURA ET AL.

Examiner

Dalzid Singh

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-21 and 23-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-21 and 23-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2-21 and 23-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyachi et al (US Patent No. 5,920,414) in view of Roberts (US Patent No. 6,031,647).

Regarding claims 10 and 31, Miyachi et al disclose a wavelength division multiplexing (WDM) optical transmission apparatus and optical repeater (as shown in Fig. 1) comprising:

a light source (i.e., LD 10₁) for outputting light beam;
an optical modulator (12₁) for modulating the light beam to output an optical signal;

Miyachi et al disclose controlling the optical source (LD) in response to an alarm (see Fig. 4 and col. 5, lines 42-51) and differ from this claim in that Miyachi et al do not specifically disclose shutting down the optical signal when receiving an alarm.

However, Roberts teaches shutting down (i.e., damping) the optical source (see col. 6, lines 55-67 to col. 7, lines 6-30). As disclosed by Roberts, the damping means allows the transmission of optical signal depending on the measured value (see col. 4, lines 60-64, col. 5, lines 1-3, 59-63 and col. 6, lines 12-18). Since shutting down of optical

Art Unit: 2633

source is well known, it would have been obvious to an artisan of ordinary skill at the time of the invention to shut down the optical source in order to provide safety feature, meet safety standards and automatically restore power to laser upon determining that the lines is operationally safe.

Furthermore, Miyachi et al shown in Fig. 7, an alarm section located in the transmitter side of the system.

Regarding claims 2 and 23, as shown in Fig. 7, Miyachi shows a circuit (bias circuit (16₁) for supplying power to the light source (LD) and a monitoring circuit (17₁) for monitoring power of the light source outputting alarm.

Regarding claims 3 and 24, as shown in Fig. 7, Miyachi shows a circuit (bias circuit (16₁) for supplying power to the light source (LD) which is a constant supply of current.

Regarding claims 4 and 25, Miyachi et al show a wavelength monitor ((40) shown in Fig. 9) to detect wavelength of the light beam and the circuit for outputting an alarm (48).

Regarding claims 5 and 26, as discussed above, Miyachi et al monitor the wavelength of the light beam in order to maintain the wavelength constant and reduce noise.

Regarding claims 6 and 27, Miyachi et al show that the light source is a laser diode (LD, see col. 9, lines 13) and the controlling means comprise means for controlling the temperature of the laser diodes (see col. 5, lines 42-51).

Regarding claims 7, 8, 28 and 29, the combination of Miyachi et al and Roberts differs from these claims in that the combination does not show the arrangement of the wavelength monitor in a specific order. However, Miyachi in Fig. 11 clearly shows a feedback loop for controlling the wavelength of laser. Therefore it would have been obvious for an artisan of ordinary skill in the art at the time of the invention to use the wavelength monitor to use the wavelength monitor output for feedback loop in order to maintain a constant wavelength and reduce noise.

Regarding claims 9 and 30, as shown in Fig. 9, Miyachi et al show that the laser diode (LD) is outputting a forward beam which is supplied to the optical modulator (as shown in Fig. 1, the optical modulator is connected to the front of the laser diode (LD)) and a backward beam which is supplied to the monitoring section (as shown in Fig. 9, monitoring section (17₁) is connected to the back of the laser diode (LD)).

Regarding claims 11-13, 16-18, 32-34 and 37-39, the combination of Miyachi et al and Roberts differs from these claims in that the combination does not show disclose a specific type of modulator. However, Mach-Zehnder and electro absorption modulators are well known modulator, therefore it would have been obvious for an artisan of ordinary skill at the time of the invention to provide either Mach-Zehnder or electro absorption modulator in order have maximal signal to noise ratio. This supporting rationale is based on a recognition that the claimed differences exist not as a result of an attempt by applicant to solve a problem but merely amounts to selection of expedients known to the artisan of ordinary skill as design choices.

Regarding claims 14 and 35, Miyachi et al disclose an optical amplifier (141) as shown in Fig. 23 and see col. 21, lines 48-51.

Regarding claims 15 and 36, as discussed above, the combination of Miyachi et al and Roberts discloses shutting down the optical source (see claims 10 and 31).

Regarding claims 19 and 40, Miyachi et al disclose a wavelength division multiplexing (WDM) optical transmission apparatus and optical repeater (as shown in Fig. 1) comprising:

a plurality of optical sender (elements 10₁, 11₁, 12₁, can be considered as an optical sender 1, elements 10₂, 11₂, 12₂, can be considered as an optical sender 2);

an optical multiplexer (13) for receiving the optical signal;

wherein each of the optical senders comprises:

a light source (i.e., LD 10₁) for outputting light beam;

an optical modulator (12₁) for modulating the light beam to output an optical signal;

Miyachi et al disclose controlling the optical source (LD) in response to an alarm (see Fig. 4 and col. 5, lines 42-51) and differ from this claim in that Miyachi et al do not specifically disclose shutting down the optical signal when receiving an alarm.

However, Roberts teaches shutting down (i.e., damping) the optical source (see col. 6, lines 55-67 to col. 7, lines 6-30). As disclosed by Roberts, the damping means allows the transmission of optical signal depending on the measured value (see col. 4, lines 60-64, col. 5, lines 1-3, 59-63 and col. 6, lines 12-18). Since shutting down of optical source is well known, it would have been obvious to an artisan of ordinary skill at the

time of the invention to shut down the optical source in order to provide safety feature, meet safety standards and automatically restore power to laser upon determining that the lines is operationally safe.

Furthermore, Miyachi et al show in Fig. 7, an alarm section located in the transmitter side of the system.

Regarding claims 20 and 41, Miyachi et al disclose a wavelength division multiplexing (WDM) optical transmission apparatus and optical repeater (as shown in Fig. 1) comprising:

- first and second terminal devices (first terminal device is to the left of the optical fiber (OF) and second terminal device is to the right of optical fiber (OF));

- optical fiber (OF) for connecting the first and second terminal;

- wherein one of the first and second terminal devices comprises:

- a plurality of optical sender (elements 10₁, 11₁, 12₁, can be considered as an optical sender 1, elements 10₂, 11₂, 12₂, can be considered as an optical sender 2);

- an optical multiplexer (13) for receiving the optical signal;

- wherein each of the optical senders comprises:

- a light source (i.e., LD 10₁) for outputting light beam;

- an optical modulator (12₁) for modulating the light beam to output

- an optical signal;

Miyachi et al disclose controlling the optical source (LD) in response to an alarm (see Fig. 4 and col. 5, lines 42-51) and differ from this claim in that Miyachi et al do not

specifically disclose shutting down the optical signal when receiving an alarm.

However, Roberts teaches shutting down (i.e., damping) the optical source (see col. 6, lines 55-67 to col. 7, lines 6-30). As disclosed by Roberts, the damping means allows the transmission of optical signal depending on the measured value (see col. 4, lines 60-64, col. 5, lines 1-3, 59-63 and col. 6, lines 12-18). Since shutting down of optical source is well known, it would have been obvious to an artisan of ordinary skill at the time of the invention to shut down the optical source in order to provide safety feature, meet safety standards and automatically restore power to laser upon determining that the lines is operationally safe.

Furthermore, Miyachi et al show in Fig. 7, an alarm section located in the transmitter side of the system.

Regarding claims 21 and 42, Miyachi et al disclose an optical amplifier (31) arranged along the optical fiber transmission line (see Fig. 5).

3. Claims 43 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyachi et al (US Patent No. 6,040,931).

Regarding claims 43 and 44, Miyazaki et al disclose optical communication system, shown in Fig. 1, comprising:

light source (OS) outputting a light beam;

an optical modulator modulating the light beam in accordance with a main signal to output an optical signal (in col. 1, lines 40-43, Miyazaki et al disclose that modulator are within the optical transmitter, which modulate the signal to output optical signal); and

a shut-down device (shown in Fig. 3, Miyazaki et al show shut-off unit (26))
shutting down the optical signal.

Miyazaki et al differ from these claims in that Miyazaki et al do not specifically disclose receiving a wavelength alarm relating to a wavelength of the light beam, the wavelength alarm being provided inside the optical sender. However, in col. 4, lines 30-52, Miyazaki et al disclose monitoring device and judgment device, which monitors wavelength parameters of the optical signal. Since the shut-off unit shuts down the optical signal if the monitored wavelength parameter does not satisfy the predetermined condition, therefore it would have been obvious to indicate that a signal, which is transmitted from the monitor and judgment device that causes the shut off circuit to shut down the optical signal, as an alarm signal.

Response to Arguments

4. Applicant's arguments filed 14 January 2003 have been fully considered but they are not persuasive. Applicant argues that the references Miyachi et al and Roberts do not disclose shutting down the optical signal. However, Miyachi et al, which disclose controlling current of the laser diode in response to the alarm signal (see col. 19, lines 57-67 to col. 20, line 1), is used in combination with Roberts, which teaches the use of attenuators (i.e., dampening elements) to reduce or shut off laser in response to alarm signal (see col. 5, lines 30-45 and col. 7, lines 25-30). Miyachi et al disclose plurality of optical signals transmitted by plurality of optical source multiplexed to an optical fiber. Abnormality to one of the optical source would cause interference of the multiplexed

signal. Miyachi et al disclose monitoring means that monitors abnormality of the optical signal. Since the monitoring device detects and monitors abnormality of the optical signal, therefore it would have been obvious to provide a shut off device, as taught by Roberts, in order to shut down or reduce the optical transmittance of an abnormal optical source. The motivation of providing a shut off device is to reduce or eliminate crosstalk, which is caused by an abnormal optical source.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is 703-306-5619. The examiner can normally be reached on Mon-Fri 8am - 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703-305-4729. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

DS
March 21, 2003


LESLIE PASCAL
PRIMARY EXAMINER